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are not beneficial, rather than otherwise. To determine that, long, careful observations are required. A species at one locality may be injurious and in another highly beneficial, and have different values at different seasons of the year. Knowing this, I thought best not to publish the investigations in regard to the food of birds that we had made, in the *Land Birds of the Pacific District*.

L. BELDING.

Stockton, Cal., Oct. 7, 1900.



Publications Reviewed

PACIFIC COAST AVIFAUNA No. 1, Birds of the Kotzebue Sound Region, Alaska. By Joseph Grinnell, pp. 80, 1 map. Published by the Cooper Ornithological Club of California, Santa Clara, Cal., November 14, 1900.

This paper is a very solid and important contribution to our knowledge of Alaskan birds. It is the result of observations covering more than a year in the region of which it treats, and is consequently of unusual interest and value. The report consists of an "Introduction," "Field-notes," "Bibliography" and "Checklist." The introduction contains a brief account of the expedition and a description of the general features of the Kotzebue "Sound region. Then follows, under Field-notes, a fully annotated list of 113 species and sub-species of birds actually collected or observed by the author. Of these 61 are water birds and 52 are land birds. One form, *Lanins borealis invictus* is described as new. The "Bibliography" cites the principal authors and titles referring to Kotzebue Sound ornithology. With each title is given a list of birds recorded as new, up to date, by that author, from the Kotzebue Sound region. The "Checklist" is a very briefly annotated list of 150 species and sub-species, and covers all the birds which are known from the region under consideration.

The region covered by the paper includes "the district coastwise between Cape Prince of Wales and Point Hope, and thence eastward to the headwaters of the streams flowing into Kotzebue Sound. This hydrographic basin * * * consists of the valleys of the Noatak, Kowak, Selawik and Buckland Rivers, as well as several smaller streams, all of which empty into Kotzebue Sound." In the spring of 1898 Grinnell joined a company of prospectors who intended to look for gold in the valley of the Kowak. They were thoroughly outfitted, owning their own schooner-yacht, the "Penelope," and besides taking material for a stern-wheel river steamer to be used on the larger streams of the region. The gold, however, did not materialize and the author rather naively remarks, "but this fact was rather fortunate for the writer and his ornithological pursuits,

for he was enabled to devote almost his entire time during the year spent in the Kotzebue Region to collecting specimens and notes on its avifauna." The expedition left San Francisco on May 19, and on the 27th of June arrived at Cape Prince of Wales. Cape Blossom was reached July 9, and the site of winter quarters on the Kowak, August 12. Side trips were made during the following year into the surrounding country. The expedition left Kotzebue Sound on the 10th of July, 1899. Grinnell secured about 700 bird skins and as many eggs. "The immediate coast district bordering Kotzebue Sound is chiefly level or rolling tundra. * *

* Throughout the tundra lands and hilly country are numerous ponds and lakes, some of considerable extent. * * * The land is mostly covered with a deep layer of moss and lichens. But in depressions, and bordering lakes and sloughs, are stretches of grass, in some places growing quite tall, and in others forming lawn-like meadows." Timber does not reach the coast, but inland, in the upper river valleys, are extensive areas of spruce, birch and cottonwood. "The Kowak valley averages about fifteen miles wide, the north side being formed by a range of mountains rising as high as four thousand feet, while on the south a lower range forms the divide between the Kowak and Selawik."

It will be impossible to give more than a glimpse into the "Field-notes." In most cases the annotations are full and include observations on distribution and life history. Considerable attention is devoted to nesting habits and eggs, and Grinnell certainly merits praise for his painstaking efforts in this line. If we are not mistaken much will be found under Field-notes which is of more than passing interest. We have particularly enjoyed reading the accounts of the Horned Puffin, Long-tailed Jaeger, Short-billed Gull, Red Phalarope, Northern Phalarope, Wilson Snipe, Hudsonian Curlew, Northern Spruce Grouse, Willow and Rock Ptarmigan, American Hawk Owl, Alaskan Jay, Hoary Redpoll, Alaskan Longspur, Siberian Yellow Wagtail, Kennicott Willow Warbler, Varied Thrush and Red-spotted Blue-throat. In the case of the Red Phalarope (*Crymophilus fulicarius*) the usual order of coloration in birds is reversed. "The females are brightest colored, apparently do most of the courting, and correspondingly it was always the male that was flushed from the nest." The curious song flight of the Wilson Snipe (*Gallinago delicata*) is described. Here in the west this is oftener heard than seen. A good account is given of both the Willow and the Rock Ptarmigan. The former "proved to be a common species throughout the lowlands from Cape Blossom up the Kowak Valley." Grinnell secured very large series of both *Lagopus lagopus* and *L. rupestris* and gives an account of

the moult in the two species. *L. lagopus* begins to change from summer to winter plumage in August, and goes on until well into October. "Three specimens taken on October 6 have the back, upper tail coverts, breast, head and neck all around still chiefly dark, though many white feathers are mixed in; the rest of the lower parts and the wings, including their coverts, are entirely white." The moult in the fall "advances in just the reverse order from that in the spring, but giving the same protective distribution of coloration, that is, dark above and light beneath. * * * Both sexes in the fall apparently undergo moult at the same time; but in the spring the male precedes the female by three weeks or more. The first appearance of dark feathers is evidenced by two males taken on April 4th." On April 26 the first males in perfect courting plumage were secured. Then follows the barred summer plumage. "The male Willow Ptarmigan thus undergoes at least three distinct moults during the year, though but one of these, that in the fall is complete. In the case of the females my specimens seem to indicate but two plumages, the winter, like that of the male, and the summer, which is different from either the courting or the summer male plumage. * * * In both sexes the tarsi and tops of the toes moult but once—in the fall. But in May, after the heavy pedal feathering is of no further use as snow shoes, the feathers apparently become brittle, for in a short time they become so abraded that the feet and tarsi are almost bare." The notes on the feeding habits and nesting of this species are of interest. During the long winter the ptarmigan subsist entirely on large quantities of buds and tender twigs of dwarf alder and willow. In the Rock Ptarmigan the female moults long before the male, just the reverse of the Willow Ptarmigan. In speaking of the Rock Ptarmigan Grinnell says:

"The Rock Ptarmigan, according to my experience, are confined exclusively to the higher hill-tops and mountains in summer, and at such elevations the snow remains later in the spring and comes much earlier in the fall than in the valley, leaving a very brief summer. No Rock Ptarmigan were detected in the Kowak Valley until February 11th. On account of the light snow-fall in the early part of the winter, they probably found sufficient forage on the mountain sides up to this date. However, during March and April flocks of from a dozen to a hundred were often met with in the lowlands. These flocks could be traced up by following their tracks, especially if the snow was freshly fallen or laid by the wind. Then tracks of a large flock of Rock Ptarmigan would form a broad swath and extend across the tundra for miles, the individual lines of tracks zigzagging back and forth so as to take

in every willow twig or bunch of grass sticking up through the snow, but all tending in the same general direction. The birds, when on these feeding marches, apparently seldom take flight unless disturbed, and I have followed these roads from one set of "forms" in the snow, where the birds had passed the preceding night, to the second set of "forms" of the succeeding night, and then finally found them, doubtless on their second day's walk without having taken flight; except occasional individuals left behind."

He also includes an entertaining little story which ought to prove a tender morsel for extremists in the theory of adaptation to peculiar environment. "The native name for the Rock Ptarmigan is also A-gar'i-uk in common with the Willow Ptarmigan, but the former is also known by the distinctive name, Nik-sak-toong'uk, referring to the black on the sides of the head. The natives say this black is so the Rock Ptarmigan, which lives on the mountains where the snow covers the ground till mid-summer, will not be blinded by the intense glare." The natives, it seems, use a similar contrivance to prevent snow-blindness.

Picoides a. alascensis proved to be the only woodpecker detected in the Kowak region. The new shrike, *Lanius borealis invictus*, "differs from *L. borealis borealis* in larger size, paler coloration dorsally, and greater extent of white markings." *Parus hudsonicus evura* Coues is recognized instead of *stoneyi* Ridgway. Grinnell secured an immature female of *Phyllopsistes borealis* August 21, '98, on the Kowak. One other was seen later but not secured. He discreetly does not tell us his feelings when this bird unceremoniously decamped "into the deep blue of the northern horizon." Unusual interest is attached to the capture of such an ornithological rarity in America as *Cyanecula suecica*. An adult male was taken, and the species undoubtedly breeds at Cape Blossom. The account of *Hesperocichla naevia* is particularly valuable because it treats of a bird which heretofore seems to have been largely avoided by writers.

Grinnell's observations have added the following species not before accredited to the Kotzebue region: *Cyclorrhynchus psittaculus*, *Simorhynchus pusillus*, *Simorhynchus cristatellus*, *Stercorarius pomarinus*, *Fulmarus glacialis rodgersii*, *Phalacrocorax pelagicus robustus*, *Chen hyperborea*, *Philacte canagica*, *Tringa canutus*, *Ereunetes occidentalis*, *Tringa bairdii*, *Aphriza virgata*, *Picoides americanus alascensis*, *Pinicola enucleator alascensis*, *Ampelis garrulus*, *Regulus calendula*, *Cyanecula suecica*.

A good map is appended showing the localities given in the report.

Pacific Coast Avifauna No. 1 is a very readable paper, the chief value of which is the biographical character of the bird notes, and

the region and season in which these notes were taken. We would be glad to have seen lists comparing summer and permanent residents and likewise areal lists, because the life zone of the coast is evidently not the same as that inland. This number starts a series of special papers, which we foresee will play no small part in western ornithology. We are bound to say the first number fulfills the requirements of a first-class publication and does credit to the club which is responsible for launching it into a world already flooded with so many good efforts.

W. K. F.



NORTH AMERICAN FAUNA No. 19 contains the "Results of a Biological Reconnaissance of the Yukon River Region," Alaska. The "Annotated List of Birds" is by Dr. L. B. Bishop, who accompanied the expedition as a volunteer assistant. The List proper consists of 171 species and subspecies, all of which are stated to have been seen or obtained by the party. There are more or less extended field notes, and in some cases technical remarks. Preceding the list is a four-page "Introduction" and a "Classified List of Species." The map accompanying this number of the *North American Fauna* serves to show the route traversed by the expedition. But we are sorry to find that only a very few of the localities mentioned in the text are indicated on the map, a fault which is quite obvious to one not having at hand any recent charts of Alaska.

Over 2000 miles of Alaskan territory were covered by the expedition, including nearly the whole length of the Yukon River. This being all accomplished within four months' time, a thorough exploration of any single locality passed through could not be expected; and at the most, the time for observation and collecting at any one point was altogether too short. The results of this trip are, therefore, quite remarkable. Eighteen species are recorded for the first time from the Upper Yukon. They are as follows: *Tringa bairdii*, *Sympetrum semipalmata inornata*, *Buteo borealis calurus*, *Falco sparverius*, *Contopus borealis*, *Contopus richardsoni saturatus*, *Empidonax traillii alnorum*, *Empidonax hammondi*, *Spinus pinus*, *Spizella socialis arizonae*, *Passerella iliaca*, *Helminthophila peregrina*, *Dendroica townsendi*, *Wilsonia pusilla pileolata*, *Sitta canadensis*, *Hylocichla aonalaeschkei*, *H. aonalaeschkei pallasi*, *Saxicola ananthe*.

Nine species are newly recorded from southeastern Alaska, mostly taken in the vicinity of Skagway and Glacier. These are: *Aechmophorus occidentalis*, *Xema sabini*, *Lagopus leucurus*, *Picoides americanus alasensis*, *Contopus richardsoni saturatus*, *Empidonax hammondi*, *Junco hyemalis connectens*, *Sitta canadensis*, *Merula migratoria*.

Haliaeetus albicilla, the Gray Sea Eagle, is

for the first time recorded from western North America, on the strength of a young specimen found dead at Unalaska. *Larus philadelphia*, *Tringa maculata*, *Tringa acuminata* and *Loxia curvirostra minor* are also recorded as new to Unalaska. *Larus philadelphia* and *Tringa acuminata* are added to the avifauna of the Pribilof Islands.

A number of recently described races of western birds are recognized in the list, among which we note *Canachites canadensis osgoodi* BISHOP, which has seemed to us to be identical with *C. canadensis labradorius* BANGS, no matter what ought to be the case from a zoographical point of view. We hope the A. O. U. Committee will be enabled to see a good series of Alaskan *Canachites* before passing on the alleged race.

The biographical notes on some of the species, although brief, are of especial interest. For instance, under the Violet-green Swallow (*Tachycineta thalassina*) which was found to be more or less common along the Upper Yukon, may be quoted: "They were nesting about the cliff as a rule, but several times we saw them enter holes in banks similar to those of *Clivicola riparia*, while at Fort Selkirk they were nesting in the interstices between the logs of the cabins." Townsend's Solitaire was also found on the Upper Yukon, and its remarkably beautiful song is described at length.

Thus are the birds of even the most remote corners of North America rapidly becoming known. Alaska seems to be a region of especial interest just now. But there certainly still remains many surprises for the observer who is willing to make systematic notes and collections for an extended period in any one of the many out-of-the-way districts, especially of the southern coast of Alaska.

J. G.



YEAR BOOK OF THE DEPARTMENT OF AGRICULTURE 1899. (Washington, 1900). The present year book is an unusually interesting volume, embracing as it does the report of each bureau of "the progress made in the application to agriculture of the particular science with which it is concerned." Ornithology and its progress during the century is ably handled by Dr. T. S. Palmer in a noteworthy contribution entitled "A Review of Economic Ornithology in the United States." The results of fourteen years' work of the Biological Survey are shown, and the commercial uses of birds taken up with reference to their value as game and as egg, guano and feather producers, while on the other hand, their value as insect and weed destroyers is forcibly pointed out. A *resume* of the various laws enacted for bird protection is given and the paper is illustrated with two full-page plates, one showing the wholesale collecting of albatross eggs and the other a vast